

Chapter Ten

The Costs and Benefits of Sustaining Iowa's Biodiversity

Background

The costs of reaching the goals outlined in this Plan exceed the historic levels of conservation funding in Iowa. Hunters and anglers have funded most wildlife conservation. National and state trends indicate that the number of participants in hunting and fishing is declining. To reach the goals established in this Plan a broader spectrum of Iowans must invest in conservation. Supporting the Wildlife Action Plan will benefit the health of wildlife *and* people. Investing in cost-effective conservation will safeguard Iowa's natural resources for the generations to follow.

Annual Costs

The annual cost to double the amount of permanently protected acres to 4% of Iowa by 2030 is estimated to be \$88 million (Table 10-1). Costs to implement the habitat management, research and surveys and other activities needed to implement the Plan are listed in Table 10-2. Combining habitat protection, habitat management, survey and research costs brings the total funding needed annually for implementation of this Plan to approximately \$133 million. The annual funding shortfall for implementation of this Plan is about \$104 million (Table 10-3).

Tracking Progress toward the Land Protection Goal

Land protection is a combination of land purchases and conservation easement purchases. Iowa DNR buys land *only* from willing sellers, and *only* at or below appraised value. Conservation easements can last for any number of years, depending on the easement program. For example, some Farm Bill conservation programs such as the Wetland Reserve Program (WRP) or Emergency Wetland Program (EWP), provide funding only for permanent easements. Iowa currently has 179,425 acres enrolled in the WRP and EWP easement programs (about 40% of which are now also in public ownership).

When this Plan was first developed in 2005 it was estimated that approximately 604,000 acres were publicly-owned, and that approximately 650,000 acres of Iowa were permanently protected for conservation purposes. While the DNR maintained a GIS database of conservation and recreation lands, all entities protecting land were not uniformly able to submit their data on land protection efforts on a regular schedule. Having the Plan in place highlighted the importance of compiling this information across organizations. In the intervening decade, Iowa has improved its estimates through a combination of technological advances and increased coordination among conservation entities.

In 2015, the number of publicly-owned conservation acres is estimated to be 895,000. If private WRP and EWP easements are added, then the estimated number of permanently protected acres is

1,002,655. If the ~32,000 acres of private conservation easements are included, then total would be 1,034,655.

Rate of Land Protection

Considering both IDNR and Federal agency land protection efforts, approximately 36,700 acres of land have been protected between 2005-2014 (a rate of approximately 3670 acres/year).

Conservation easements through WRP & EWP have totaled about 61,300 acres in that same time period (approximately 40% of which is accounted for in the state/federal estimate above). More difficult to calculate is the number of acres protected by the 99 different County Conservation Boards, but about 10,000 acres is a reasonable estimate (a rate of approximately 1000 acres/year). Thus, in the past decade, approximately 83,500 acres of land in Iowa have been permanently protected through a combination of fee-title purchase and easements.

Challenges to attainment of the original habitat goal remain considerable. The *original* goal to achieve permanent protection of 4% of Iowa's acres in 25 years would have required a rate of 31,600 acres protected per year. The rate over the past decade has been much more modest: approximately 8350 acres/year (considering both easements and acquisition). The *remaining* habitat needed to double the amount of land permanently protected in Iowa to 1,440,000 acres (4% of Iowa) would require a rate of land protection of ~29,300 acres/year. That rate is about 3.5 times the current pace of land protection in Iowa. At the current rate of 8350 acres protected per year, it will take 53 years to protect the remaining 440,000 acres needed, meaning that the habitat goal is more achievable by 2070 than 2030.

The cost per acre of land has influenced the amount of land protection that can be accomplished with a limited budget. The average cost/acre of land protected over the last ten years has been just under \$2000, and the trend over that period was that the cost of land protection roughly doubled. In 2005, farmland values in Iowa averaged \$2900/acre. In 2014, average farmland values were closer to \$8000/acre (CARD, 2015). These cost-per-acre estimates aren't directly applicable to the types of lands acquired for conservation purposes, as public conservation land in Iowa is marginal for agricultural uses, with an average corn suitability rating (CSR) of 32.1. The cost of farmland is presented here to illustrate the demand for land in Iowa as well as the variability of that demand over relatively short periods of time, all of which influence the cost of land protection.

Table 10-1. Cost to Double the Amount of Permanently Protected Conservation Land in Iowa by 2030

Habitat Protection Needs	Acres and Dollar Amounts
Acres in Iowa	36,000,000
Acres Protected by 2030 (4% of Iowa)	1,440,000
Current Acres Permanently Protected (Public Ownership + Private Wetland Easements)	1,000,000
Additional Acres Needed	440,000
Cost/acre (2014) for marginal land	\$3,000
Total Cost	\$1,320,000,000
Cost/Year (15 years)	\$88,000,000
Existing Sources of Funds (estimated based on mean contributions to land protection over past 10 years)	
Dedicated Funds	
Iowa Habitat Stamp	\$1,200,000
Iowa Migratory Bird Stamp	\$50,000
REAP License Plate Fund	\$250,000
Sub-total	\$1,500,000
Appropriated Funds (subject to debate or use for other purposes)	
Federal NAWCA	\$1,000,000
Federal Farm Bill Conservation Easement Programs	\$10,000,000
Federal SWG	\$150,000
US FWS Land & Water Conservation Fund	\$150,000
Wildlife & Sport Fish Restoration (Pittman-Robertson)	\$1,000,000
REAP Public-Private	\$340,000
REAP Open Spaces	\$1,500,000
Sub-total	\$14,140,000
Non-State and Federal Donations	
CCB's (using Habitat Stamp, REAP and 25% match)	\$2,000,000
INHF/PF/DU/NWTF/TNC & Individual Landowners	\$1,000,000
Sub-total	\$3,000,000
Available Per Year	\$18,640,000
Annual Shortfall	\$69,360,000

Table 10-2. Cost to manage public lands, provide technical assistance to private landowners, and conduct research & monitoring needed for wildlife population management, in accordance with this Plan's goals.

Wildlife Habitat Management & Science	Dollar Amounts
Public Land Management	\$30,000,000
Private Lands Assistance	\$7,000,000
Education	\$1,500,000
Recreation	\$1,500,000
Science & Monitoring	\$5,000,000
Total Annual Needs	\$45,000,000
Existing Funds	
Public Land Management	\$8,000,000
Private Lands Assistance	\$1,000,000
Science & Monitoring	\$1,500,000
Total Available	\$10,500,000
Annual Shortfall	\$34,500,000

Table 10-3. Estimated funding needs over next 15 years (2015-2030) for full implementation of Plan.

Combined Annual Costs	Dollar Amounts
Needs – Land Protection	\$88,000,000
Needs – Habitat Management & Science	\$45,000,000
Annual Needs Combined	\$133,000,000
Funds Available – Land Protection	\$18,640,000
Funds Available – Habitat Management & Science	\$10,500,000
Annual Funds Available Combined	\$29,140,000
Annual Shortfall – Land Protection	\$69,360,000
Annual Shortfall – Habitat Management & Science	\$34,500,000
New Funds Needed Annually:	
Total	\$103,860,000

Benefits of Sustaining Biodiversity in Iowa

Economic Benefits

Outdoor recreation opportunities are important to Iowans. Iowa State Parks receive over 25 million visits annually, and County Parks are estimated to receive a comparable number of visits (Otto et al. 2007). Outdoor recreation is also an important economic sector. Otto et al. (2007) evaluated the economic impact of four outdoor recreation amenities in Iowa for which there was usable data (state parks, lakes, county parks, and trails). They estimated that these four amenities received 50 million visits annually, generating \$2.63 billion of spending. This is a conservative estimate, as it doesn't include use of wildlife areas, water trails, national wildlife refuges, or a variety of other outdoor amenities. A report that includes a wider variety of outdoor recreation types, compiled by the Outdoor Industry Association, estimates that outdoor recreation generates \$6.1 billion in consumer spending in Iowa, supports 75,000 jobs, generates \$1.7 billion in salaries and wages, and \$433 million in state and local tax revenues (OIA 2012).

A 2013 analysis conducted by Southwick & Associates called "The Conservation Economy in America" estimated the total direct investment in fish and wildlife conservation, and the resulting economic contributions for each state in the nation. The report also provides estimated 'multiplier effect' and 'conservation rebate' levels for each state, which are defined below:

Multiplier Effect: economic activity beyond direct expenditures for conservation, which are the result of the direct expenditures. This includes output, jobs, and income for business and employees that are a part of the supply chain for the businesses receiving the initial direct expenditures.

Conservation Rebate: Tax revenues to local, state, and federal governments which result from economic activity generated by the initial investment.

Based on 2010 spending levels, this report estimated Iowa's total direct investment to be \$534.6 million (which includes all fish and wildlife conservation-related expenditures by federal state and local governments and private organizations). Iowa's multiplier effect was estimated to be 1.29. In other words, a dollar spent on fish and wildlife conservation in Iowa can be expected to yield \$1.29 in economic activity. Thus, Iowa's economic output was estimated to be \$689 million. In addition, Iowa's conservation rebate was estimated to be \$62 million to local, state, and federal coffers.

Whether the analysis focuses on fish and wildlife expenditures or outdoor recreation more broadly, the resulting message is consistent: conservation is a solid investment in Iowa.

Other Benefits

Nature provides many benefits and services to people (clean air, clean water, food, medicine, aesthetics, relaxation, recreation, etc.), some of which cannot easily be translated into monetary values. Below are some examples of the types of benefits provided by natural communities in Iowa:

Wetlands

- Groundwater recharge
- Flood attenuation
- Hunting opportunities
- Aesthetics
- Nutrient removal (clean water)
- Habitat for diverse plant and animal communities
- Reduction in flashiness of hydrologic system

Forests

- Habitat for diverse plant and animal communities
- Recreational opportunities (hiking, camping, hunting, etc.)
- Aesthetics
- Generation of wood products
- Carbon storage
- Air quality

Grasslands

- Soil quality
- Water quality
- Carbon storage
- Aesthetics
- Habitat for diverse plant and animal communities
- Recreational opportunities

These benefits are sometimes referred to as “ecosystem services.” The values of ecosystem services are not regularly captured in monetary terms, but frameworks are being developed (Daily et al. 2009). Hopefully future analyses of the return on investment for conservation expenditures will incorporate more ecosystem services, in order to more accurately capture the costs and benefits of conservation investments.

Conclusion

Iowa citizens are strongly in favor of investments in conservation. In a 2013 bipartisan, statewide survey of voters, 97% of respondents agreed (76% strongly agreed) with the following statement (FM3 and POS, 2013):

“We need to ensure that our children and grandchildren can enjoy Iowa’s land, water, wildlife and natural beauty the same way we do.”

References Cited in Chapter 10

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